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The Collapse of Intelligent Design

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The Defeat of Intelligent Design

In 2005, the intelligent design (ID) movement had its day in court, in the form of Tammy Kitzmiller, et al. versus Dover Area School District, et al. (usually shortened to Kitzmiller v. Dover or just Kitzmiller). The case began after a school board in Dover, Pennsylvania, passed a policy mandating that ID be introduced into the biology curriculum, and that an ID textbook, *Of Pandas and People: The Central Question of Biological Origins*,[1] be made available to students. Eleven parents from Dover filed a constitutional challenge, represented pro bono by the American Civil Liberties Union (ACLU) of Pennsylvania, Americans United for Separation of Church and State, and attorneys from Pepper-Hamilton, a private Philadelphia law firm. The plaintiffs also received assistance from the National Center for Science Education, which contributed pro bono advice on science, creationism, and science education (both of us worked extensively on the case throughout 2005).

The Dover Area School District was defended by the Thomas More Law Center, a nonprofit law firm describing itself as "the sword and shield for people of faith."[2] The Law Center had been seeking a test case on ID for years,[3] and in 2004 it found in Dover a school board willing to adopt an

ID policy and textbook (*Of Pandas and People*). This was sure to bring a constitutional challenge and a media circus rarely seen since the 1925 Scopes Monkey Trial in Dayton, Tennessee. Indeed, Richard Thompson, director of Thomas More Law Center, explicitly stated his hope that the Kitzmiller case would put his group on the map, much as the Scopes Trial had done for the ACLU in 1925.

The Kitzmiller case, filed on December 14, 2004, was litigated for just over a year. On December 20, 2005, after months of pretrial discovery, depositions, and hearings, a six-week trial, hundreds of exhibits and briefs, and unprecedented media coverage of ID and its claims, Judge John E. Jones III issued a 139-page ruling that struck down a policy promoting ID in the Dover public schools.[4]

The surprising feature of the decision was not that ID lost the case; this had been widely predicted, based on the behavior of the school board (although the Thomas More Law Center said repeatedly it hoped to appeal the case to the Supreme Court). What surprised many[5] (but not us[6]) was the crushing nature of the defeat. Not only did the judge rule that the Dover Area School District's ID policy violated the Constitution's prohibition against government establishment of religion, the judge also found that the ID movement's claim that ID was science failed on multiple grounds, that ID was intrinsically a specific religious view and, even more damaging, that ID was just creationism given a new, more secular label after the court defeats of "creation science" in the 1980s.

The ruling therefore knocked down each of the main pillars on which ID proponents had based their fifteen-year campaign for respectability in academia and constitutionality in public-school science classrooms. The Kitzmiller decision was not appealed (the pro-ID school board was voted out in November 2005), and therefore it did not establish a binding precedent as would a Supreme Court case. The ruling was widely seen as setting a persuasive precedent, however, in part because the judge's detailed and unequivocal ruling was based on a massive evidentiary record, including hundreds of exhibits and six weeks of sworn testimony, much of it from the leading proponents and opponents of ID. Future courts would therefore likely pay close attention to the Kitzmiller ruling, much as a similar 1982 district court decision against "creation science," McLean v. Arkansas,[7] influenced the 1987 Supreme Court decision Edwards v. Aguillard.[8] Another reason Kitzmiller set a persuasive precedent is that the ruling came not from a left-wing liberal judge, but a churchgoing Republican who had been recommended for the federal bench by Pennsylvania Senator Rick Santorum and appointed by George W. Bush—two politicians strongly supported by religious conservatives, and who had both supported teaching ID in the public schools. If ID

lost big even before a conservative appointee, school boards had little reason to suspect ID policies would fare better in future court cases.

The persuasive value of the Kitzmiller decision became evident following the decision. The 2006 calendar year contained a string of reversals for the ID movement. Santorum, who in 2001 attempted to add pro-ID language authored by Phillip Johnson to the federal No Child Left Behind Act, resigned from the board of the Thomas More Law Center immediately after the ruling. Despite this and other attempts to increase his appeal to political moderates, he lost his reelection bid in November 2006. School boards in California and New Mexico dropped antievolution policies, as did the Ohio Board of Education. A common argument made against antievolution policies was that while they might appeal to religious conservative voters, they set up a "Dover trap" for the governmental body—referring to the fact that the Dover school district, after losing the Kitzmiller case, had to pay $1,000,011 to the plaintiffs—$1 to each plaintiff in symbolic damages, and $1 million to cover partially over $2 million in fees accumulated by the plaintiffs' legal team. The Kansas Board of Education, which had a 6-4 creationist majority and passed extensive pro-ID changes to the science standards in 2005 (while vociferously claiming it was not requiring ID),[9] never got the chance to see its strategy tested in court, because two creationists were defeated by proscience candidates in the August 2006 Republican primary.[10] Several other pro-ID candidates around the country lost in the November 2006 elections. Finally, in December 2006, almost exactly one year after the Kitzmiller decision, the four-year-old case of Selman v. Cobb County School District, a case concerning the constitutionality of "warning label" stickers placed in the front of biology textbooks in Cobb County, Georgia, was resolved when the school district threw in the towel rather than face a retrial where the plaintiffs' case was strengthened by the Kitzmiller decision and lawyers and experts who had worked on the Kitzmiller case.[11]

During all this, the Discovery Institute's Center for Science and Culture[12]—the Seattle-based think tank that since 1996 has served as the main institution supporting ID—vehemently disclaimed any support for Dover's policy. This occurred despite the fact that, early in the case, five of the Discovery Institute's fellows had signed up as expert witnesses for the Defense (three of whom—Angus Campbell, William Dembski, and CSC Director Stephen C. Meyer—dropped out midway through the case for reasons that remain obscure[13]), Dover's textbook Of Pandas and People was heavily promoted on the Discovery Institute Web site, and a Discovery Institute video, Icons of Evolution, helped to radicalize the creationist leaders on the Dover school board. Even more incredibly, the Discovery Institute also claimed it had always opposed any official policies promoting ID in the public schools,

apparently forgetting that just a few years earlier its own 1998 strategic plan, entitled "The Wedge," had explicitly declared that one of their "Five Year Objectives" was to have "ten states begin to rectify ideological imbalance in science curricula & include design theory" and then "pursue possible legal assistance in response to resistance to the integration of design theory into public school science curricula."[14] In a public confrontation at an American Enterprise Institute event that took place in Washington, D.C., while the Kitzmiller trial was ongoing, Richard Thompson accused the Discovery Institute of changing its tune. Thompson quoted a 1999 "legal guidebook" coauthored by David DeWolf (law professor and Discovery Institute fellow) and Stephen Meyer (the director of the Discovery Institute Center for Science and Culture) that stated, "school boards have the authority to permit, and even encourage, teaching about design theory as an alternative to Darwinian evolution—and this includes the use of textbooks such as Of Pandas and People that present evidence for the theory of intelligent design."[15] Thompson concluded, "you had Discovery Institute people actually encouraging the teaching of intelligent design in public school systems. Now, whether they wanted the school boards to teach intelligent design or mention it, certainly when you start putting it in writing, that writing does have consequences."[16]

In summary, in spite of recent denials, the ID movement and the Discovery Institute cannot avoid responsibility for creating the situation—the claim that "intelligent design" is "science," the handy public-school biology textbook, Of Pandas and People, and the legal strategy and encouragement—that would sooner or later result in a courtroom showdown. Even if Kitzmiller v. Dover had never occurred, some similar case would have come about sooner or later.

Both the ID movement's recent defeats, and the Discovery Institute's shameless denial of its own history, make it apparent that the 2005 Kitzmiller decision has dealt the ID movement a defeat at least as damaging as the defeat that the 1982 McLean decision inflicted on the then-popular "creation science" movement. While traditional "creation science" is still popular with many fundamentalists, it is no longer taken seriously as a legal strategy with any chance of success in American courts. ID was the new hope of creationists, but now it too is probably dead as a legal strategy. However, we are not so foolish as to think that "intelligent design" and its proponents will disappear from view; after all, creation-science groups like Answers in Genesis are still the biggest antievolution groups, and still the most influential within the evangelical/fundamentalist public, if not the media and politicians. We suspect that, at least in the arena of public schools, that history will repeat itself: creationists will again move to new strategies, as they have in the face of previous court defeats.

The Constitutionality of ID: Pre-Kitzmiller Claims

Before the Kitzmiller case, the ID movement produced a substantial body of legal commentary confidently asserting that ID should and would pass constitutional muster, where previous creationist policies had not.[17] These works doubtlessly provided encouragement and guidance to the Thomas More Law Center during its decisions to construct and litigate the Kitzmiller case. After the ID legal strategy crashed and burned in Kitzmiller, ID proponents seem to have retreated somewhat from their initial strong promotion of ID in the public schools, and are switching to a pure "evolution-bashing" strategy, as represented in a new Discovery Institute supplemental biology textbook, entitled Explore Evolution.[18] This is somewhat difficult to accept at face value, given the brash confidence ID proponents expressed just few years before. And despite recent backpedaling, a new post-Kitzmiller law review article showed that ID promotes still promote the central pillars on which the ID movement rests, to wit: (1) ID is not creationism in disguise, (2) ID is instead a scientific theory that is a responsible scientific alternative to modern evolutionary theory, and (3) therefore ID is constitutional to teach in public-school science classrooms, just like any other scientific theory.[19]

Although these claims are the central issues in virtually every work promoting or critiquing ID, and although we believe they were definitively debunked during the Kitzmiller trial and the judge's ruling, we feel it would be worthwhile to examine them again specifically in the light of the ID movement's pre-Kitzmiller legal claims and the subsequent Kitzmiller decision. Court cases like Kitzmiller are where the rubber meets the road for legal scholarship. By conducting a postmortem, and examining what went wrong, larger lessons can be learned.

Background: Legal History of Creationism in the Public Schools

To explore these questions, we must briefly review the legal history of antievolutionism in the USA. The four most important cases are Scopes v. Tennessee (1925–1927), Epperson v. Arkansas (1968), McLean v. Arkansas (1981–1982), and Edwards v. Aguillard (1981–1987). We will pick up the story with the aftermath of Epperson and the rise of "creation science." For further details of the legal history, including other important cases, readers are referred to Ed Larson's excellent book Trial and Error.[20] For more background on the historical origins of ID from creationism, readers are referred to recent articles.[21]

The Second Creationist Strategy: Equal Time for "Creation Science." In 1968, the first creationist strategy—namely, banning evolution from the public schools outright, as fundamentalists had successfully and scandalously done from the 1920s to the 1960s—was ruled unconstitutional in the U.S. Supreme Court's Epperson v. Arkansas decision.[22] But creationism did not go away: it evolved into a second antievolution strategy. According to Ronald Numbers's definitive history of scientific creationism, The Creationists: The Evolution of Scientific Creationism, "creation science" was born in 1969.[23] The basic idea was that if creationism was portrayed as science instead of a particular theological interpretation of the Bible, then it would be constitutional in the public schools. Henry Morris, the leader of the creationist resurgence, said "Creationism is on the way back, this time not primarily as a religious belief, but as an alternative scientific explanation of the world in which we live."[24] ID proponents more or less admit, although usually only implicitly, that "creation science" wasn't really science and was instead just a scientific veneer over a particular literalist reading of Genesis, so we will not argue the point further here.

Creation science grew in popularity throughout the 1970s. The movement peaked in 1981 when Arkansas and then Louisiana passed laws mandating "equal time" for creation science (similar bills were proposed in dozens of other states, but were not passed). The ACLU challenged the Arkansas law first on behalf of a diverse set of plaintiffs including teachers and ministers. Both sides called in their top experts for the trial. A two-week trial was held in Little Rock in December 1981. A battle of the experts took place, with leading scientists like Stephen Jay Gould, Brent Dalrymple, and Francisco Ayala lining up on the plaintiffs' side, and leading creation-science witnesses lining up to support the state of Arkansas' defense of the law. These included Norman Geisler (then a theology professor at the Dallas Theological Seminary), a number of witnesses from the Adventist Geoscience Research Center, and most significantly, Dean Kenyon, a young-earth creationist who actually held a tenured faculty position in a biology department at a major public university, San Francisco State.

To make a long story short, the creationists were trounced. Most of the defense witnesses had joined creationist organizations that had membership statements committing them absolutely to a strict literalist reading of Genesis, and furthermore had failed to get their claims published in peer-reviewed scientific journals. Geisler, an old-earth creationist but a leading advocate of biblical inerrancy, attempted to argue in court that supernatural creation was not necessarily a religious doctrine, but got tripped up when, "under cross-examination, Geisler tarnished his credibility somewhat by declaring that UFOs were agents of Satan."[25] As for the creationists' best weapon,

San Francisco State University biophysicist Dean Kenyon (a young-earth creationist and follower of Henry Morris[26]), he flew to Little Rock to be deposed before his testimony, but he "fled town after watching the demolition of four of the state's science witnesses on day 1 of the second week."[27] It later emerged that Kenyon withdrew from the case on the advice of Wendell Bird, the young-earth creationist and ally of the Institute for Creation Research who in 1978–79 had published the legal rationale for the constitutionality of creation science in prestigious law-review journals.[28] Arkansas attorney general Steve Clark threatened Bird with legal action for interfering.[29] Bird was to head the defense of Louisiana's Balanced Treatment Act, and apparently wanted to save Kenyon's credibility for the Louisiana case.

After the courtroom debacles, even the creationists did not have much hope for a positive result in the McLean case. On January 5, 1982, Judge Overton issued a long and detailed opinion ruling Arkansas' balanced-treatment law unconstitutional. Overton found that "creation science" failed to be science on numerous grounds, and more importantly, that the content of "creation science" was through-and-through a religious view.[30] It was a crushing and embarrassing defeat for the always brash creation scientists. Moody Monthly, a fundamentalist magazine highly sympathetic to creation science, declared in a May 1982 cover story that Arkansas was "Where Creationism Lost Its Shirt."[31]

The Second (and a Half) Strategy: Redefine Creation Science in Edwards v. Aguillard. The definition of "creation science" in Louisiana's Equal Time law was changed the day after the ACLU filed suit against the Arkansas law.[32] The Louisiana legislature removed explicit references to a young earth, global flood, and special creation of humans and the Genesis "kinds." This was part of a legal strategy to make "creation science" less vulnerable to the charge that it was religion in disguise.

The litigation of the Louisiana case was complex because in 1981 Wendell Bird got a jump on the ACLU and filed a preemptive suit in state court the day before the ACLU filed in federal court. Resolving the resulting tangle took until 1984, at which point the case was headed for a federal district court trial with the ACLU as plaintiffs and Wendell Bird heading the creationist defense for the state. Both sides named and deposed expert witnesses in preparation for trial. Many of the witnesses for both sides had been used in McLean, but this time Bird had Dean Kenyon and Walter Bradley—two future leaders of the ID movement—on his list.[33] For the summary judgment litigation, Kenyon wrote an expert-witness affidavit presenting the case that "creation-science is as scientific as evolution." Contrary to the claims of the ID proponents, who say that "creation science" is always strictly defined as

Genesis literalism and therefore ID is different, Kenyon claimed "Creation-science does not include as essential parts the concepts of catastrophism, a world-wide flood, a recent inception of the earth or life, from nothingness (ex nihilo), the concept of kinds, or any concepts form Genesis." Instead, said Kenyon, "Creation-science means origin through abrupt appearance in complex form."[34]

Unfortunately for the creationists, before a trial was held in Louisiana, the ACLU filed a summary judgment motion and won. A summary judgment motion argues that a trial is unnecessary because the agreed-upon facts (which included the legislative history of Louisiana's equal-time bill), even construed in favor of the party opposing summary judgment, are sufficient for the judge to reach a decision. The ACLU was able to cite clear evidence of creationist and apologetic claims from the 1981 legislative history, which included the testimony of various creation scientists. Doubtless the McLean trial, which had already dealt with a very similar law, helped the ACLU's argument.

When Judge Duplantier ruled summarily for the plaintiffs, some thought that the creationists were at the end of their rope. But Wendell Bird was just beginning to fight. He appealed the summary judgment decision to the circuit court. Losing before a three-judge panel, he appealed to the full circuit court en banc, and again lost, but this time only by an 8-7 vote. Finally Bird appealed to the Supreme Court, and in December 1986 oral arguments took place. Bird referred repeatedly to the affidavits of Kenyon and several other experts, and did the same in a written brief. But it was all for naught; on June 19, 1987, the Supreme Court decided 7-2 against overturning the summary judgment against the Louisiana law, ruling "The Act impermissibly endorses religion by advancing the religious belief that a supernatural being created humankind."[35] Regarding Bird's argument that expert testimony in a full trial might change the outcome, the Court ruled, "The District Court, in its discretion, properly concluded that the postenactment testimony of these experts concerning the possible technical meanings of the Act's terms would not illuminate the contemporaneous purpose of the state legislature when it passed the Act. None of the persons making the affidavits produced by appellants participated in or contributed to the enactment of the law."[36] The only place Kenyon's affidavit was cited was in the dissent, written by Justice Scalia, who cited Kenyon no less than fourteen times.

Ignoring the substantive holding that supernatural creation was a religious view and therefore unconstitutional for the state to advocate in science classes, creationists took heart from this passage in the Court's ruling:

> We do not imply that a legislature could never require that scientific critiques of prevailing scientific theories be taught. Indeed, the Court

> acknowledged in Stone that its decision forbidding the posting of the Ten Commandments did not mean that no use could ever be made of the Ten Commandments, or that the Ten Commandments played an exclusively religious role in the history of Western Civilization. In a similar way, teaching a variety of scientific theories about the origins of humankind to schoolchildren might be validly done with the clear secular intent of enhancing the effectiveness of science instruction. But because the primary purpose of the Creationism Act is to endorse a particular religious doctrine, the Act furthers religion in violation of the Establishment Clause.[37]

Creationists, including those of the ID variety, have henceforth cited the first and third sentences in this passage (but not the fourth) almost robotically in every single discussion of the constitutional issues surrounding their views.

Although young-earth "creation science" is probably still the most popular view amongst evangelicals, it gradually faded from the national scene after Edwards. In several cases, rather than requiring that creationism be taught, creationists attempted strategies such as disclaimers or teachers teaching creationism on their own initiative. However, these have all failed in district and appeals courts.[38]

Intelligent Design, Kitzmiller, and Science

We now turn to "intelligent design." ID appeared on the creation/evolution scene in 1989 with the publication of the supplemental biology textbook *Of Pandas and People*, produced by the Foundation for Thought and Ethics (FTE).[39] As Buell, the head of FTE, wrote in a 2004 preface for the third edition of Pandas, "this book was the first intelligent design textbook. In fact, it was the first place where the phrase 'intelligent design' appeared in its present use."[40] The movement grew in popularity with works like Phillip Johnson's 1991 *Darwin on Trial*, Michael Behe's 1996 *Darwin's Black Box*, and a variety of works by William Dembski, Jonathan Wells, Paul Nelson, Stephen Meyer, and others. Since 1996, Meyer was the head of the ID program at the Discovery Institute.

The "standard line" put out by the ID movement, in arguing for the constitutionality of ID, is that ID is scientifically credible and that it is definitely not creationism. All of the major law-review articles arguing for the constitutionality of ID rely on these background premises. In addition, the standard line is available in almost every book, article, and Web site promoting ID. These exact arguments were employed by the Thomas More Law

Center in defending the Dover Area School District in the 2004–2005 Kitzmiller case. In its formal answer to the plaintiffs' complaint (each of these documents is a written brief submitted to the court at the beginning of the case), the defense argued:

> Intelligent Design is a scientific theory based on interpretation of scientific data by scientists; it is endorsed by a growing number of scientists who assert that intelligent causes are necessary to explain the complex, information-rich structures observed by biologists. It does not presuppose any supernatural being. It is not Creationism, which in its basic form holds that the biblical account of creation recorded in the Book of Genesis is scientifically accurate.[41]

In a brief supporting summary judgment in favor of the defendants, the defense argued:

> Plaintiffs also want this court to ignore the reality that the Board is ultimately responsible for the educational policy of the school district and that they believed that intelligent design was a scientific theory advanced by at least some credentialed scientists—and they were correct. Moreover, Pandas, as this Court can readily judge for itself, is a book about science. It does not contain citations to Sacred Scripture nor does it discuss the Biblical account of creation as found in the Book of Genesis.[42]

And finally, after the trial, the defense submitted to the court a 950-point Proposed Findings of Fact and Conclusions of Law. From point 939:

> a. Although Plaintiffs allege that IDT [intelligent design theory, the Defense's preferred term] is a non-scientific argument that is inherently religious, the evidence shows that IDT is a scientific argument, advanced by scientist [sic] relying on evidence and technical knowledge proper to their specialties.
>
> b. Although the Plaintiffs claim that IDT is Creationism, the evidence shows that IDT is not Creationism.[43]

And from point 950, the very last paragraph of the Defense's 232-page submission:

> 950. In sum, the Court [should find] that Edwards, supra, actually supports the Defendants policy in this case precisely because the Supreme Court took pains to point out that "teaching a variety of scientific theories about the origins of humankind to school children, might be validly

> done with the clear secular intent of enhancing the effectiveness of science instruction."[44]

We feel it necessary to belabor this point, for the following reasons. After the trial, the Discovery Institute and other critics of the Kitzmiller decision not only argued that the judge was wrong in his ruling that ID was not science and was creationism—an argument that of course they are entitled and expected to make—but they furthermore argued, indignantly and vociferously, that the judge had no business whatsoever ruling on these questions. In the light of the defense's explicit and prominent arguments on exactly this question—the core of their entire defense strategy—and the fact that the defense was simply making use of the arguments that the ID movement's legal minds, had been boldly promoting for years in books and law-review journals, this objection to the Kitzmiller ruling is unbelievable and mendacious. If the ID movement didn't want a court to rule on whether or not ID was scientific, then ID advocates should not have put forward the "ID is science" argument in the first place. As has long been observed, you reap what you sow.[45]

The Claim That ID Is Science

Due to space limitations we can only briefly rebut the claim that ID is science. ID is strong on bold rhetoric and confident boasting, but extremely deficient in serious self-criticism, careful qualification of its claims, or anything approaching the scientific behavior usually exhibited by dissidents attempting to overthrow established scientific opinion. Blustering about science may work well in newspapers, law-review articles, and conferences designed to promote ID—but when scientists who know better see it, all it does is convince them that ID is just another one of the hundreds of crank science movements out there.

As it turns out, blustering also doesn't work well in court—or at least it didn't work in the Kitzmiller case, where six weeks of trial time were available for careful examination and cross-examination of each of claims made. Time after time in the Kitzmiller case, common ID talking points—the very talking points that are confidently put forward in law-review articles on ID-were confidently put forward, but then collapsed on examination by plaintiff experts and the court.

For example, the Discovery Institute attempts to show that it has serious scholarship behind it by displaying a list of "peer-reviewed and peer-edited" articles supporting ID. The Discovery Institute even submitted this list to the judge in Kitzmiller via an amicus brief,[46] a venue that avoids cross-examination in open court.

Unfortunately, like virtually every ID argument in science, philosophy, or law, the claim to have peer-reviewed backing was a house of cards, built mostly on wishful thinking. In fact, when the peer-review issue came to a head in the Kitzmiller trial, the defense and its witnesses did not even try to use most of the Discovery Institute's literature list. When it came to the key issue, the real measure of science—original empirical research published in peer-reviewed science journals—the entire ID movement came up empty. "The evidence presented in this case demonstrates that ID is not supported by any peer-reviewed research, data or publications. Both Drs. Padian and Forrest testified that recent literature reviews of scientific and medical-electronic databases disclosed no studies supporting a biological concept of ID."[47] Furthermore, the judge was even able to quote Michael Behe, the ID movement's leading expert, to this effect:

> On cross-examination, Professor Behe admitted that: "There are no peer reviewed articles by anyone advocating for intelligent design supported by pertinent experiments or calculations which provide detailed rigorous accounts of how intelligent design of any biological system occurred."[48]

When the ID movement's own star science expert gives testimony like this—under oath, when it really counts—it destroys ID proponents' attempts to obfuscate this issue elsewhere. Just to be thorough, however, we feel it is important to note that even if the ID movement did somehow produce a few research articles in peer-reviewed journals that claimed to support ID, the movement would have just taken the first tiny baby step toward scientific credibility. Cold fusion, homeopathy, and Bigfoot have all been published in the scientific literature to a greater extent than ID, and yet none of these areas is considered credible science worthy of inclusion in public-school science classrooms.

As Kitzmiller lawyer Eric Rothschild noted, one of the plaintiffs' experts, paleontologist Kevin Padian, by himself has written more than a hundred peer-reviewed scientific articles. When leading publications such as Science or Nature publish a research study claiming to support intelligent design, then ID will be something worth discussing seriously as science in the biological community. Only if ID becomes well-accepted within the biological community will ID have earned a place in the textbooks. This hard route is the one taken by all other modern scientific theories—plate tectonics, the big bang, and so forth. Did the proponents of the big bang skip doing the hard work, and instead lobby school boards and legislatures in order to force their views into public-school science classrooms? The very thought is ridiculous. The proponents of the big bang did the experiments, made their case in the science journals, won

over the physics community, and won their Nobel Prizes, and eventually their place in textbooks. This route is the only respectable one in science, and it is the ID movement's only chance of ever being taken seriously as science.

What About the Arguments?

Perhaps we have been unfair in not addressing the scientific details of the claims made by the ID movement. We cannot do everything in one short essay, but to sum up our view, the vast majority of the writing put out by the ID movement, even when it is not precisely republished material, is redundant. About 75 percent of the ID movement's biology-related argumentation could be summed up in one essay by Meyer on the origin of genetic information, an essay by Dembski on specified complexity, and an essay by Behe on irreducible complexity. The rest is unsystematic assertion about fossils and the like, adopted practically unmodified from the creation scientists.

For the most detailed scholarly critiques of the ID movement's scientific claims—critiques that will have to be acknowledged and met in detail for ID to ever become accepted by scientists—we refer readers to the key references listed in a recent review.[49] Many of the basics of the problems with ID arguments were covered in the expert testimony at the Kitzmiller trial, which is freely available online, and summarized in the judge's opinion.[50]

The Claim That ID Is Not Creationism

If the ID movement's claims to scientific status break down, then what is the real identity of ID? In the Kitzmiller case, the plaintiffs had to make the case against ID being science, but this was only a secondary argument (though obviously important) made in rebuttal to the likely defense argument. The plaintiffs' main argument had to establish that ID was a religious view, because the Constitution prohibits governmental entities from establishing religion through policies that have the primary purpose and/or effect of promoting a particular religious view.

On the one hand, this turned out to be easy—the Dover school board members who passed Dover's ID policy had made it clear that they were trying to promote their religious views in the public schools. The fact that in the summer of 2004, Dover school board president Bill Buckingham stood up in front of his church and took a collection to gather money to purchase the copies of Of Pandas and People that were later "anonymously" donated the Dover classrooms, also didn't help the defense case. This was especially true when Buckingham lied to hide this fact in the sworn depositions, later exposed during a dramatic courtroom cross-examination.[51]

Critics of the Kitzmiller decision have regularly suggested that the case should have been decided merely on the basis of the actions and statements of the Dover Area School Board. The plaintiffs did not know going into the case, however, that the school board members were going to lie in their depositions or that this would be provable by documents brought to light during the discovery period of the case. Furthermore, the tests used in religious establishment cases specify that secondary religious purposes or effects do not override a policy if the primary purpose and effect are secular. Thus the defense might argue that even if some of the school board members happened to have the personal motive of promoting their religious views, "intelligent design" was not a religious view, and therefore the primary governmental purpose and effect of teaching ID was to enhance science instruction—a secular goal, endorsed by the Supreme Court in Edwards. Predictably, the defense ended up relying heavily on this argument, as we saw above.

The Establishment Clause and "Religious Purpose"

This sort of argument has become popular in general among ID proponents, who would like to have a way to argue that ID or other antievolution policies are constitutional despite the fact that these policies are inevitably passed by fundamentalist politicians who are typically not shy (until coached by lawyers) about declaring their goal of promoting their creationist religious views via the public schools. It should be noted that ID proponents are often confused about what the words religious purpose mean in a constitutional context. In establishment-clause court cases, a policy is declared unconstitutional if a court finds it was enacted for a "religious purpose," that is, in violation of the well-known "purpose prong" of the Supreme Court's Lemon test. ID proponents object, asserting that the "religious purpose" test means there is a general ban on governmental actors using their religious beliefs in making decisions, voting on legislation, and so forth, and that therefore the Lemon test itself is an unconstitutional form of religious discrimination. If ID proponents' understanding of the term religious purpose were correct, they might have a point. However, it is not. In the legal context of judicial review of governmental policies, the phrase "this policy has a religious purpose" does not mean "this policy was enacted for religious reasons" but instead means "this policy was enacted for the purpose of having the government establish a religious view."

In other words, the Constitution bars the government from promoting any particular religious view. Government establishment of religion is the key concern for courts, not the personal motives of legislators. The latter

may be relevant in a particular legal situation, but not always. For example, a law that required public-school science classes to teach Mormon views on North American archaeology (which include many beliefs, such as the idea that ancient Israelites traveled to the Americas, which are not supported by modern archaeology) would be an unconstitutional establishment of a particular religious view whether or not the legislators who passed that policy personally believed that those views were based on religion or science. A court well informed by relevant experts would easily conclude that (1) the Mormon archaeological view is not actually derived from scientific evidence but instead is derived from the book of Mormon and (2) the governmental policy clearly has the purpose of pushing that religious view. Thus the policy has a "religious purpose" in the legal sense. Even if the legislators sincerely believed with all their hearts that Mormon archaeology was scientifically supported, it would still be unconstitutional.

We acknowledge that the shorthand phrase religious purpose lends itself to the kind of confusion we are warning against. But a careful understanding of what "religious purpose" means avoids the quandaries that are raised by foes of the purpose prong. Passing a bill to help the poor because legislators believe that the Bible commands them to help the poor is perfectly constitutional—the governmental action that results is helping the poor, not governmental promotion of a particular religious view. Passing a bill that required public schools to put a sign in every classroom saying "help the poor because the Bible says so" would be entirely different matter.

Intelligent Design Is a Religious View: The Evidence

With the above context in place, we can see why it was important for the plaintiffs to argue positively that ID was intrinsically a religious view, separately from the question of what the Dover Area School Board said while passing the policy. During the discovery period of the Kitzmiller case, some evidence on this point came to light that was truly "astonishing" (this was the word the judge used in his opinion).

Readers will recall that the Dover school board adopted the ID movement's biology textbook, Of Pandas and People, and in an official policy recommended it to students who were "interested in gaining an understanding of what Intelligent Design actually involves."[52] Pandas was the book that systematically used the "intelligent design" terminology, and also the first book to put "intelligent design" in a glossary. Here is a definition from Pandas commonly cited at the Kitzmiller trial: "Intelligent design means that various forms of life began abruptly, through an intelligent agency, with their distinctive features already intact—fish with fins and scales, birds with feathers, beaks, and wings, etc."[53] Even at face value, this definition is rather obviously a description of the traditional creation-science doctrine of special creation, where various groups of organisms are created fully formed by God, as described in Genesis. ID proponents claim that ID does not rely on the Bible, but in fact careful readers of Pandas will find evidence of exactly this reliance, only slightly disguised. For example:

> An additional issue concerns the matter of the earth's age. While design proponents are in agreement on these significant observations about the fossil record, they are divided on the issue of the earth's age. Some take the view that the earth's history can be compressed into a framework of thousands of years, while others adhere to the standard old earth chronology.[54]

These are clearly references to young-earth and old-earth creationism—yet the views are being called "intelligent design" instead! Even ID advocates admit that young-earth views are based on a particular reading of the Bible, so they have already lost the argument that "intelligent design" is something different. Here is another example: "design proponents point to the role of intelligence in shaping clay into living form."[55] This seems like a bizarre statement until it is realized that it is a reference to the verse in Genesis where it is said that God created organisms from "dust of the ground." Based on this and other evidence, reviewers of Pandas were sure that "intelligent design" was creationism in disguise. In fact, this was clearly stated in print starting in 1989 and continuing throughout the 1990s.[56] And this was before any details were known about the history of "intelligent design."

In the spring of 2005, we discovered some evidence indicating that Pandas not only made use of recycled creationist arguments, but that it also had actually used creationist terminology in early drafts. For example, consider a small announcement published in a 1981 creationist newspaper. The front-page headline of the newspaper read, "Lawsuit prospects dim in Arkansas, bright in Louisiana." Beneath the main article, a short announcement stated, "A high school biology textbook is in the planning stages that will be sensitively written to 'present both evolution and creation while limiting discussion to scientific data.'"[57] This is an early reference to the Pandas project, eight full years before the book was published. Notably, the book is supposed to be a "two model" work—exactly the approach the creation scientists were using at the time! Furthermore, the two models are not evolution and "intelligent design," but "creation and evolution."

A second document that turned up in research was a 1987 prospectus for a textbook called Biology and Origins. At the time, a manuscript textbook (also by Kenyon and Davis, and thus the same book as the Pandas proj-

ect) was being shopped around to potential publishers by the Foundation for Thought and Ethics. Even in 1987, the textbook topic was described as "creation and evolution," not "intelligent design." These and other clues led to the suggestion in April 2005 that the Kitzmiller plaintiffs should attempt to recover the drafts of the Pandas book via subpoena. After several months of battling over the subpoena, the drafts were turned over. To our amazement, not one, but five different prepublication drafts of the Pandas textbook were recovered. They were eventually introduced into evidence in the Kitzmiller case with the following titles and exhibit numbers: *Creation Biology* (1983, P-563), *Biology and Creation* (1986, P-560), *Biology and Origins* (1987, P-561), *Of Pandas and People* (1987a, P-562), and *Of Pandas and People* (1987b, P-652).

If the progression of titles wasn't clear enough, examination of the text was even more revealing. Consider the earlier-cited quote from Pandas, "Intelligent design means that various forms of life began abruptly . . ." In the drafts, the quote appears, but in somewhat modified form: "Creation means that various forms of life began abruptly through the agency of an intelligent Creator with their distinctive features already intact—fish with fins and scales, birds with features, beaks and wings, etc."[58]

Was this only time this delightful change of words occurred? No. Similar switches, between the word creation and its cognates ("creationist," and the like) and variations on design ("intelligent design," "design proponents," and so forth) occurred over one hundred times throughout the book. The rebranding took place between the two 1987 drafts entitled Of Pandas and People.[59] Both drafts cite the then-recent Edwards decision, which the Supreme Court issued on June 19, 1987. Evidently, what happened was that the creationists working on the Pandas book—including Kenyon, an expert who was advocating the creation-science position in Edwards at the same time that he was writing Pandas—decided that creation science was legally dead, and if they wished their book to have a chance in public schools, they had better find a new term.[60]

Here we have the glorious origin of ID. Not in a conference, definitely not in a peer-reviewed scientific journal, but in a shoddy attempt to avoid the Supreme Court's Edwards decision. Although the Pandas drafts were utterly unknown before the Kitzmiller case, this is exactly what the critics of ID had always claimed. ID is literally creationism relabeled.

Conclusion

Naturally, the legal implications of this evidence in the Kitzmiller case were devastating for the argument that ID is constitutional. The Pandas relabeling evidence almost makes a district court judge's decision for him. A judge's job is to follow the Supreme Court's precedents. The Supreme Court had already ruled against creation science, in the 1987 Edwards decision, and ID emerged in a trivial relabeling attempt that was then systematically hidden as a dark secret for fifteen years. Thus the Supreme Court has in effect already made the decision, and what is left for the district court judge to do is apply the precedent.

We do not review all of this in order to gloat over the defeat of ID. There is a moral here, even for people who are sympathetic to the ID movement. The moral is that wishful thinking does not get you very far. Sunny claims, such as the notion that ID has substantial scientific support, or even that it is an up-and-coming challenger to evolution with peer-reviewed scientific backing, might work with sympathetic and uncritical audiences such as those found at apologetics conferences (the major venue at which ID is promoted). But they won't work in situations where informed critics can reply, such as court cases or academia, and they won't even work in media/political debates beyond the short term. Eventually the inconvenient facts come out, and even groups that are naturally sympathetic to ID, like conservative evangelical Christians, end up with a bad taste in their mouths. We are convinced that in the long run, Christian believers will not condone the use of euphemisms like "ID" to disguise views to get around Supreme Court decisions.

Unfortunately, it appears that the Discovery Institute is a long way from learning this lesson. Instead of doing the only intellectual responsible thing—following the path of everything else in science and making its case to the scientific community before pushing its fringe view in public schools—the Discovery Institute is instead going to have yet another try at the Of Pandas and People strategy. The Discovery Institute's new public-school biology textbook, Explore Evolution,[61] is essentially Pandas with "intelligent design" deleted. The content of the book (which we have reviewed) shows that behind various denials and obfuscations the book is promoting the same old religious doctrine of special creation. The Discovery Institute is thus ensuring that legal battles and the "culture war" over evolution will continue for the foreseeable future.

A. Lorentz to A. Einstein, January 1915, Boerhaave Museum, cited in Jozsef Illy, "Einstein Teaches Lorentz, Lorentz Teaches Einstein. Their Collaboration in General Relativity, 1913–1920," *Archive for History of Exact Sciences* 39 (1989): 274; Arthur Eddington, *Space, Time and Gravitation*, Cambridge Science Classics (Cambridge: Cambridge University Press, 1920; rep. ed., 1987), 166.

21. Lin Dyson, Matthew Kleban, and Leonard Susskind, "Disturbing Implications of a Cosmological Constant," November 14, 2002, 421, arXiv.org/abs/hep-th/0208013v3 (accessed June 8, 2007).

22. Ibid., 20–21.

23. Ibid.

24. Ibid., 2.

25. Ibid., 21.

Chapter 4 Notes

1. P. William Davis, Dean H. Kenyon, and Charles B. Thaxton, Of Pandas and People: The Central Question of Biological Origins, 2nd ed. (Dallas: Haughton, 1993). Other authors of portions of the book include Stephen Meyer, Mark Hartwig, Nancy Pearcey, and Michael Behe.

2. Thomas More Law Center, About Us, http://www.thomasmore.org/about.html (accessed June 14, 2007).

3. Laurie Goodstein, "In Intelligent Design Case, a Cause in Search of a Lawsuit," New York Times, November 4, 2005.

4. Kitzmiller v. Dover Area School District, 400 F.Supp.2d 707 (M.D. Pen. 2005).

5. For example, at the beginning of the trial, William Dembski estimated that there was "less than a 10% probability" that ID would be ruled both unconstitutional and unscientific. William A. Dembski, "Life After Dover," Uncommon Descent, September 30, 2005, http://www.uncommondescent.com/intelligent-design/life-after-dover/ (accessed June 14, 2007).

6. Nicholas J. Matzke, "Am I Psychic or What?" The Panda's Thumb, December 20, 2005, http://www.pandasthumb.org/archives/2005/12/am_i_psychic_or.html (accessed June 14, 2007).

7. McLean v. Arkansas Board of Education, 529 F.Supp. 1255 (E.D. Ark. 1982).

8. Edwards v. Aguillard, 482 U.S. 578 (S.Ct. 1987).

9. See Nicholas J. Matzke and Paul R. Gross, "Analyzing Critical Analysis: The Fallback Antievolutionist Strategy," in Not in Our Classrooms: Why Intelligent Design is Wrong for Our Schools, ed. Eugenie Carol Scott and Glenn Branch (Boston: Beacon Press, 2006), 28–56, for a detailed critique of the 2005 Kansas Science Standards. The chapter also rebuts the ID movement's attempt to throw its critics off the scent by claiming that the Kansas Science Standards did not include ID.

10. Kansas' pro-ID science standards were finally repealed by the new board on February 13, 2007.

11. Nicholas J. Matzke, "History and Cobb County," The Panda's Thumb, 2006, http://www.pandasthumb.org/archives/2006/12/history_and_cob.html (accessed June 14, 2007); idem, The Cobb County Anti-Evolution Textbook Disclaimer Case, 2006, http://www2.ncseweb.org/selman/ (accessed June 14, 2007).

12. Previously known as the Center for the Renewal of Science and Culture. See NCSE, Evolving Banners at the Discovery Institute, August 29, 2002, http://www.ncseweb.org/resources/articles/8325_evolving_banners_at_the_discov_8_29_2002.asp (accessed June 14, 2007).

13. For some analysis, see Barbara Forrest, The "Vise Strategy" Undone: Kitzmiller et al. v. Dover Area School District, Committee for the Scientific Investigation of Claims of the Paranormal, 2006, http://www.csicop.org/intelligentdesignwatch/kitzmiller.html (accessed June 14, 2007); and Wesley R. Elsberry, "Can I Keep a Witness?" Reports of the National Center for Science Education 26, no. 1 (2006).

14. "The Wedge," Discovery Institute, 1998, http://www.seattleweekly.com/2006-02-01/news/the-wedge.php (accessed June 14, 2007).

15. David K. DeWolf, Stephen C. Meyer, and Mark E. DeForrest, Intelligent Design in Public School Science Curricula: A Legal Guidebook (Richardson, Tex.: Foundation for Thought and Ethics, 1999).

16. "Discovery Institute and Thomas More Law Center Squabble in AEI Forum," http://www.ncseweb.org/resources/news/2005/US/98_discovery_institute_and_thomas_10_23_2005.asp (accessed June 14, 2007).

17. For example, Francis J. Beckwith, Law, Darwinism and Public Education: The Establishment Clause and the Challenge of Intelligent Design (Lanham, Md.: Rowman & Littlefield, 2003); idem, "Public Education, Religious Establishment, and the Challenge of Intelligent Design," Notre Dame Journal of Law, Ethics, and Public Policy 17, no. 2 (2003): 461–519; idem, "Science and Religion Twenty Years after McLean v. Arkansas: Evolution, Public Education, and the New Challenge of Intelligent Design," Harvard Journal of Law and Public Policy 26, no. 2 (2003): 455–99; David K. DeWolf, "Academic Freedom After Edwards," Regent University Law Review 13 (2000): 447–81; DeWolf, Meyer, and DeForrest, Intelligent Design in Public School Science Curricula; idem, "Teaching the Origins Controversy: Science, or Religion, or Speech?" Utah Law Review 39 (2000): 39–110.

18. Stephen C. Meyer, Scott Minnich, Jonathan Moneymaker, Paul A. Nelson, and Ralph Seelke, Explore Evolution: The Arguments for and against Neo-Darwinism (Melbourne & London: Hill House, 2007).

19. David K. DeWolf, John G. West, and Casey Luskin, "Intelligent Design Will Survive Kitzmiller v. Dover," Montana Law Review 63, no. 1 (2007): 7–57. See also the response to the article in the same issue: Peter Irons, "Disaster in Dover: The Trials (and Tribulations) of Intelligent Design," Montana Law Review 63, no. 1 (2007): 59–87.

20. Edward J. Larson, Trial and Error: The American Controversy over Creation and Evolution, 3d ed. (New York: Oxford University Press, 2003).

21. Nicholas J. Matzke, "But Isn't It Creationism? The Beginnings of 'Intelligent Design' in the Midst of the Arkansas and Louisiana Litigation," in But Is It Science?, ed. Michael Ruse and Robert T. Pennock, [AQ: Publisher? Web site?] 2007; Eugenie C. Scott and Nicholas J. Matzke, "Biological Design in Science Classrooms," Proceedings of the National Academy of Sciences 104, no. suppl. 1 (2007): 8669–676.

22. Epperson v. Arkansas, 393 U.S. 97 (S.Ct. 1968).

23. Ronald L. Numbers, The Creationists: From Scientific Creationism to Intelligent Design, exp. ed. (Cambridge: Harvard University Press, 2006).

24. Ibid.

25. Roger Lewin, "Creationism on the Defensive in Arkansas," Science 215, no. 4528 (1982): 33–34.

26. Rebecca Salner, "Professor teaches a supernatural creation of world," San Francisco Examiner, December 17, 1980, A9.

27. Lewin. "Creationism on the Defensive in Arkansas."

28. Wendell L. Bird, "Freedom of Religion and Science Instruction in Public Schools," Yale Law Journal 87, no. 3 (1978): 515–70; idem, "Freedom from Establishment and Unneutrality in Public School Instruction and Religious School Regulation," Harvard Journal of Law and Public Policy 2 (1979): 125–205.

29. Jack Weatherly, "Creationists Lose in Arkansas: Missing Witnesses and a Divided Defense Muddled the Issue," Christianity Today, 22 January 1982, 28–29.

30. Contrary to regular creationist complaining in subsequent decades, faithfully repeated by ID advocates, McLean's Judge Overton did not arbitrarily employ against creationism a dubious definition of science contrived by Michael Ruse for legal purposes. Overton received testimony from Ruse as well as numerous leading scientists and reached a workable layman's understanding of what constitutes science, and found that "creation science" didn't fit. Contrary to popular belief, a judge's job is not to achieve philosophical perfection that settles every conceivable issue for all times and places; rather, it is to use the evidence presented in the form of sworn testimony to reach a reasonably good decision in a short period of time. This is all a judge is required to do, as was pointed out to Larry Laudan and other critics of Overton and Ruse at the time: Barry R. Gross, "Philosophers at the Bar—Some Reasons for Restraint," Science, Technology, and Human Values 8, no. 4 (1983): 30–38. See also a forthcoming article by Robert Pennock in But Is It Science? that reviews McLean and its critics in the light of his experience in Kitzmiller.

31. Martin Mawyer, "Arkansas: Where Creationism Lost Its Shirt," Moody Monthly 82, no. 9 (1982): 10–14.

32. Beckwith, "Science and Religion Twenty Years after McLean v. Arkansas."

33. Wendell Bird (1982), "Plaintiffs' Summaries of Expert Testimony," Keith v. Louisiana Department of Education, Plaintiffs; Walter Bradley, "Foreword," in Origin Science: A Proposal for the Creation-Evolution Controversy (Grand Rapids: Baker, 1987), 7–9.

34. Dean H. Kenyon (1984), "Affidavit of Dean Kenyon," Edwards v. Aguillard, Expert, Eastern District of Louisiana: Civil Action No. 81-4787. (Emphasis added)

35. Edwards v. Aguillard, 482 U.S. 578 (1987).

36. Ibid.

37. Ibid.

38. Reviewed by Beckwith, Law, Darwinism, and Public Education.

39. Davis, Kenyon, and Thaxton, Of Pandas and People.

40. Jon Buell, "Preface," in The Design of Life: Discovering Signs of Intelligence in Biological Systems, ed. Michael J. Behe, Percival Davis, William A. Dembski, Dean H. Kenyon, Jonathan Wells (Richardson, Tex.: Foundation for Thought and Ethics, 2004),

iv–vi. The third edition of Pandas is to be entitled The Design of Life. It was to be published in 2004; however, as of this writing, it is not out. Currently it is expected to be published in summer 2007. The preface and several other sections of the book were available on William Dembski's Web site, http://www.designinference.com, for much of 2004.

41. Richard Thompson, Robert J. Muise, Patrick T. Gillen, and Ron Turo (2005), "Answer," Kitzmiller v. Dover, Defendants, Middle District of Pennsylvania: 04-CV-2688.

42. Robert J. Muise, Richard Thompson, Patrick T. Gillen, Edward L. White III, and Ron Turo (2005), "Defendants' Brief in Support of Motion for Summary Judgment," Kitzmiller v. Dover.

43. Patrick T. Gillen, Richard Thompson, Robert J. Muise, and Ron Turo (2005), "Defendants' Proposed Findings of Fact and Conclusions of Law," Kitzmiller v. Dover. The word scientist is a typo; it was meant to read scientists.

44. Ibid.

45. Galatians 6:7. In fact, it is clear that the Discovery Institute legal scholars don't even believe their own arguments in this area, as they continue to invoke the "teaching a variety of scientific theories" language from Edwards as justification for getting ID and other forms of creationism taught in the public schools.

46. David K. DeWolf, Leonard G. Brown, III, and Randall L. Wenger (2005), "(Revised) Brief of Amicus Curiae, The Discovery Institute, Appendix A: Documentation showing that the scientific theory of intelligent design makes no claims about the identity or nature of the intelligent cause responsible for life." Kitzmiller v. Dover, Discovery Institute (Amicus).

47. Kitzmiller v. Dover, 400 F.Supp.2d 707.

48. Ibid.

49. Scott and Matzke, "Biological Design in Science Classrooms."

50. Kitzmiller v. Dover, 400 F.Supp.2d 707. See especially the section on "Whether ID is Science."

51. Nicholas J. Matzke, "Design on Trial: How NCSE Helped Win the Kitzmiller Case," Reports of the National Center for Science Education 26, no. 1 (2006): 37–44.

52. Kitzmiller v. Dover, 400 F.Supp.2d 707.

53. Davis, Kenyon, and Thaxton, Of Pandas and People, 99–100.

54. Ibid.

55. Ibid.

56. Matzke, "But Isn't It Creationism?"

57. Anonymous, "Unbiased Biology Textbook Planned," Origins Research 4, no. 2 (1981): 1.

58. Kitzmiller v. Dover, P-562, 2-14, 2-15 (emphasis added). Similar versions of this sentence appear in all drafts except the 1983 Creation Biology.

59. Scott and Matzke, "Biological Design in Science Classrooms."

60. For more detailed analysis, see Matzke, "But Isn't It Creationism?"; and Scott and Matzke, "Biological Design in Science Classrooms."

61. Meyer, Minnich, Moneymaker, Nelson, and Seelke, Explore Evolution.